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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/547,167	04/11/2000	Joseph Travis Kennedy	100595.0052US1	4380

7590

01/28/2004

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EXAMINER

NOVACEK, CHRISTY L

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 01/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/547,167

Applicant(s)

KENNEDY ET AL.

Examiner

Christy L. Novacek

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-10,12-15,17-27 and 29-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5,6,8-10,12-15,22-27 and 29-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 April 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to the request for continued examination and amendment filed November 18, 2003.

Response to Amendment

The amendment of claims 8 and 29 are sufficient to overcome the rejection of claims 8-10 and 29-32 under 35 U.S.C. 112, first paragraph as stated in the previous Office Action. Therefore, this rejection is withdrawn.

The limitations added to claims 1 and 22 are sufficient to overcome the admitted prior art, Hussein et al. (US 6,037,255), Avanzino et al. (US 5,795,823) and Pellerin et al. (US 6,228,758) references. Therefore, the rejections of claims 1-6, 8-10, 12-15, 17-27 and 29-33 under 35 U.S.C. 103(a) are hereby withdrawn.

Claim Objections

Claims 1 and 22 are objected to because of the following informalities:

Claim 1 (lines 9-11) and claim 22 (lines 8-10) recites the limitation of “depositing a sacrificial inorganic dielectric in the line opening, wherein the sacrificial inorganic dielectric substantially filling the line opening and substantially covering the top surface of the stack.” In order to correct a grammatical problem with this limitation, “filling” should be changed to “fills” and “covering” should be changed to “covers”.

Applicant is advised that should claim 5 be found allowable, claim 8 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. Likewise, should claim 6 be found allowable, claim 9 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof.

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Additionally, should claim 26 be found allowable, claim 29 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof and should claim 27 be found allowable, claim 30 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 12, 13-15 and 33 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 12 and 33 recite the limitation "the second hardmask layer" in line 1 of each claim. There is no support in the specification for providing a second hardmask layer.

Claim 13 recites the limitation "an inorganic intermetal dielectric layer between said diffusion barrier and said organic intermetal dielectric layer". The specification does not provide support for forming both a first and second organic

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intermetal dielectric layer (as recited in claim 1) and an inorganic intermetal dielectric layer as recited in claim 13.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5, 6, 8-10, 12, 13, 22-27 and 29-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 (line 2), claim 8 (line 2), claim 13 (line 3), claim 26 (line 2) and claim 29 (line 2) recite the limitation of "said organic intermetal dielectric layer". However claims 1 and 22, upon which these claims depend, recites a "first organic dielectric layer" and a "second dielectric layer". Therefore, it is unclear as to which of these organic dielectric layers claims 5, 8, 13, 26 and 29 are referring.

Claims 12 and 33 recite the limitation "the second hardmask layer" in line 1 of each claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 22 (line 8) recites the limitation "the line opening". There is insufficient antecedent basis for this limitation in the claim.

Response to Arguments

Applicant's arguments filed November 18, 2003 have been fully considered.

The Examiner agrees with Applicant's argument that Pellerin (US 6,228,758) teaches away from using an etchstop layer in between intermetal dielectric layers (col. 1, ln. 35-67). As a result, the rejection of claims 1-6, 8-10, 12-15, 17-27 and 29-33 under 35 U.S.C. 103(a) are

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hereby withdrawn.

Allowable Subject Matter

As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

Claim 1 would be allowable if rewritten or amended to overcome the objection to this claim.

Claims 22-27, 29-32 and 34-38 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, and the objection to this claim set forth in this Office action.

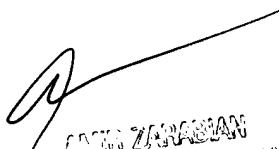
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christy L. Novacek whose telephone number is (571) 272-1839. The examiner can normally be reached on Monday-Thursday and alternate Fridays 7:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

CLN
January 20, 2004


AMIR ZARABIAN
SUPERVISOR
TECHNOLOGY CENTER